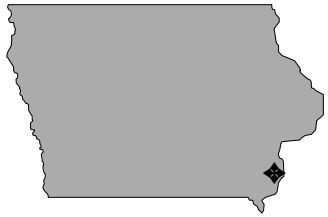
Iowa Army Ammunition Plant — NPL

Size: 19,024 acres
Mission: Load, assemble, and pack munitions
HRS Score: 29.73; placed on NPL in August 1990
IAG Status: IAG signed in December 1990
Contaminants: Explosives, heavy metals, and VOCs
Media Affected: Groundwater, surface water, sediment, and soil
Funding to Date: $43.0 million
Estimated Cost to Completion (Completion Year): $80.4 million (FY2040)
Final Remedy in Place or Response Complete Date for All Sites: FY2014



Middletown, Iowa

Restoration Background

In 1941, the Army constructed the Iowa Army Ammunition Plant to load, assemble, and pack various conventional ammunition and fusing systems. During operations, industrial process wastewaters and by-products were disposed of at the installation. Site types include surface impoundments, production areas, landfills, and a fire training pit. Soil and groundwater contamination resulted primarily from disposal of explosives and heavy metal–containing wastes directly on soil. The installation also identified small amounts of contamination by volatile organic compounds (VOCs).

Environmental studies, beginning in the early 1980s, identified 40 restoration sites. Of those sites, 33 required further study. In FY92, Remedial Investigation and Feasibility Study (RI/FS) activities began. In FY96, the installation completed its RI; however, supplemental RI efforts have since been initiated. Restoration activities through FY96 included closing one cell in the inert landfill, removing aboveground treatment tanks, removing lead-contaminated soil from a production line, and cleaning up an abandoned coal storage yard. The installation, in coordination with the local public water utility, funded a project connecting local residences to a public water supply. Other restoration activities involved excavation and off-site incineration of pesticide-contaminated soil and excavation of explosives-contaminated sumps. The installation created four operable units (OUs)—a soil OU (OU1), an interim soil OU (OU2), a groundwater OU (OU3), and an overall OU (OU4). OUs 1 and 2 were merged for ease of management. At the inert landfill, the installation constructed a new RCRA-type cell; however, capping did not occur, because surface impoundment material and solid waste management unit (SWMU) material are still being placed in the landfill.

In FY97, the Army removed more than 80,000 cubic yards of contaminated soil from the former Line 1 impoundment area and the Line 800 lagoon. It created wetlands and began phytoremediation to clean up residual contamination. The installation is holding the most highly contaminated soil in a designated corrective action management unit until it determines the most effective method of treatment. The Army continued a demonstration of aerobic and anaerobic bioslurry techniques. The Army, EPA, the University of Iowa, the U.S. Fish and Wildlife Service, and private entities are cooperating in demonstrations of other methods of remediating explosives-contaminated soil.

The installation has increased community awareness through meetings and slide presentations with the installation's Restoration Advisory Board (RAB), the public, and the news media.

FY98 Restoration Progress

The Army completed two studies on removing of explosives contamination from soil. The U.S. Army Environmental Center (AEC) completed the bioslurry demonstration, and the U.S. Army Corps of Engineers (USACE) completed humic polymer testing. Soil removal at the former Line 1 impoundment area and the Line 800 lagoon was completed. The installation capped five landfill cells and placed soil from the inert landfill burning grounds under the landfill cap or in Trench 6. The impacted soil was removed from the East Burn Pads and the North Burn Pads.

The installation began predesign characterization sampling at the West Burn Pads and Burn Cages and began excavating the impacted soil at the North Burn Pads landfill and the fire training pit. It also began treating VOC-contaminated soil from the fire training pit by using the low-temperature thermal desorption unit. The installation initiated the off-post groundwater study and supplemental RI groundwater activities around the Line 800 lagoon.

The installation did not complete the groundwater Record of Decision (ROD), due to funding constraints, but did complete the interim soil ROD and a ROD addressing soil remediation. As a cost-saving measure, the remediation team decided to keep the RCRA landfill open for placement of soil from other remediation projects.

The RAB received training on the CERCLA process and program and established RAB operating procedures. It also helped establish cleanup priorities and provided comments on selection of a soil treatment remedy and affected off-post drinking water wells. The RAB visited the site to review cleanup progress. The installation continues to foster partnerships with regulators. EPA, USACE, AEC. It also created a project management team, which meets monthly or as required.

Plan of Action

- Complete soil removal at the North Burn Pads landfill, the East Burn Pads, and the fire training pit in FY99
- Initiate off-post groundwater investigation in FY99
- Continue monitoring of phytoremediation effectiveness in FY99
- Complete the groundwater ROD in FY00

FY99 Funding by Phase and Relative Risk